

86 Taking a Look Outside

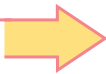


Until now, you have focused on studying ecology in the laboratory. But ecology is the study of living organisms in the physical environment. This means that a majority of ecological study is done in the natural habitat of organisms, which is usually outdoors. This type of outdoor investigation is known as **field study**. The scientist you read about in Activity 85, “Is There Room for One More?” performed a long-term field study of Lake Ness.



The “field” in field study can refer to any kind of ecosystem.

CHALLENGE



What do you observe when you conduct a field study?

MATERIALS



For each pair of students

- 1 metric ruler (optional)
- 1 magnifier (optional)
- 1 thermometer (optional)

PROCEDURE

1. Select an ecosystem on your school grounds or near your school. Think about locations where you are most likely to observe interactions between living and non-living factors. Be sure to consider all of the possible habitats that are available in the area. For example, an overhanging roof may be home to a population of birds. Long grasses may contain many small animals, such as insects. Streams or ponds are also excellent places for field study.
2. Spend some time carefully observing your ecosystem. Start by simply sitting quietly and watching. Then record all the different types of habitat found within your ecosystem. For example, if you chose a small pond, you might identify the pond edge, the shallow water, and the deep water as three different types of habitat.
3. Record the characteristics of each habitat found within your ecosystem. For example, how much light and oxygen are available? How much rainfall is your habitat likely to receive? What is the temperature within the habitat? Will the temperature change a lot over a 24-hour period? Over the entire year?
4. Look for the presence of living organisms within your ecosystem. You may observe living creatures by gently looking among the different habitats, such as under leaves and rocks, or you may observe signs, such as animal tracks or other disturbances, that show that living creatures have been through the habitat.
5. Study your habitat for the next few days:
 - a. Every day, observe your ecosystem for at least five minutes. Note any changes that occur. You may want to consider making your observations as an answer to a question, such as “Do I observe more species in the shady part of this ecosystem compared to the sunlit areas?”
 - b. Quantitatively investigate one physical factor, such as temperature. Do this by taking measurements of this factor each time you observe your ecosystem.
6. If possible, create a food web for the organisms within your ecosystem. Identify the role (producer, consumer, or decomposer) that each organism plays within the ecosystem.

ANALYSIS



1. Summarize the results of your field study. What did you learn about this ecosystem? How did the physical factor you measured change over time? Was there any relationship between your observations and the physical factor you measured?

2. Compare the advantages of field study to laboratory work in studying ecology. Explain your ideas.



3. You may have seen documentaries or read books on ecosystems around the world. How do you think the information presented in these sources is gathered?



4. Many ecologists spend their entire lives studying a single ecosystem or population of organisms. For example, Dian Fossey spent almost 19 years studying the mountain gorillas of central Africa. Jane Goodall spent many years studying chimpanzees in their natural environment. Today, ecologists study ecosystems and organisms in all different parts of the world. Why do you think people spend their lives studying such systems? What can such studies tell us about the natural environment?

5. **Reflection:** How did field study differ from your laboratory work on ecology?